

ABSTRACT OF THE DISCLOSURE

Method of producing lead-free gasoline composition having a sulfur content of 1 ppm or less and an octane number of 89.0 or more, includes: subjecting a cracked naphtha fraction exhibiting a temperature for 5 vol % distillation of 25°C or higher and for 95 vol % distillation of 210°C or lower, an olefin content of 5 mass % or more and a diene number of 0.3 g/100 g or less to a desulfurization treatment, and mixing the resultant desulfurized cracked naphtha fraction with another gasoline base material; and a lead-free gasoline composition having an octane number of 89.0 or more, a temperature for 50 vol % distillation of 105°C or lower, has an olefin content of 10 vol % or more and a total sulfur content of 1 ppm or less, and a percentage of a thiophene type sulfur compound in the total sulfur content of 50 % or more.